

maroon central blotch, and the central blotch is often elongated into a colored crescent or horizontal band. The flowers of the coastal group are more cuneate and less clawed than those of the interior group. Also, the interior group is more variable in gland shape, ranging from narrowly rectangular to lunate to weakly inverted V-shaped. Regardless, *C. argillosus* is morphologically distinct from *C. superbus*, *C. luteus*, and *C. venustus*.

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NEW CHROMOSOME COUNTS IN MADIINAE (ASTERACEAE) AND THEIR SYSTEMATIC SIGNIFICANCE.—Bruce G. Baldwin, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ 85721.

Chromosome numbers have been reported from all but five of the ca. 116 species of tarweeds (cf. Kyhos et al., Biodiversity and cytogenetics of the tarweeds [Asteraceae: Heliantheae-Madiinae], Ann. Missouri Bot. Gard. 77:84–95, 1990). New chromosome records from *Hemizonia martirensis*, *Layia platyglossa* [*L. ziegleri*], and *Madia stebbinsii* reported herein leave only one extant species of Madiinae uncounted: *Hemizonia streetsii* A. Gray, from the remote San Benito Islands of Baja California. The systematic significance of these new counts is assessed in light of the nearly comprehensive record of chromosome numbers in Madiinae and pertinent morphological evidence.

Floral buds were fixed in modified Carnoy's solution (6:3:1; chloroform:100% ethanol:glacial acetic acid) for five days. Cells were stained in acetocarmine and cleared with Hoyer's solution prior to squashing. All counts were from microspores at diakinesis, metaphase I, or anaphase I.

Hemizonia martirensis Keck, $n=12$, Mexico, Baja California, Sierra de San Pedro Martir, Valladares, 0.4–0.8 km E of the ranch site, Baldwin, S. N. Martens, & S. J. Bainbridge 771 (ARIZ).

The modal, and possibly basal, chromosome number in *Hemizonia* sect. *Madimeris*, to which *H. martirensis* belongs, is also $n=12$. This count, therefore, offers little insight into infrasectional relationships of *H. martirensis*.

Layia platyglossa (Fischer & C. A. Meyer) A. Gray [*L. ziegleri* Munz], $n=7$, CA, Riverside Co., San Jacinto Mts., 1.3 km N of Keen Camp Summit along Hwy 74, S. J. Bainbridge 91-3 (ARIZ); $n=7$, Garner Valley, 0.3 km N of Morris Ranch Road, S. J. Bainbridge 91-4 (ARIZ).

Layia ziegleri was described by Munz (Supplement to A California Flora, Univ. California Press, 1968) as a new species with probable close affinities to *L. glandulosa* (Hook.) Hook. & Arn. ($n=8$) or *L. pentachaeta* A. Gray ($n=8$). *Layia ziegleri* is indeed readily distinguished from all $n=8$ *Layia* species by its pappus of scabrous, non-plumose bristles. Later, Munz (A Flora of Southern California, Univ. California Press, 1974) only hesitantly recognized *L. ziegleri* by indicating that it was an "uncertain taxon" that might be conspecific with the highly polymorphic *L. platyglossa* ($n=7$). *Layia ziegleri* has been accorded status as a List 1B (rare or endangered) species by the California Native Plant Society (Smith Jr., J. P. and K. Berg, Inventory of Rare and Endangered Vascular Plants of California, CNPS, 1988) and as a Sensitive species by the U.S. Forest Service (Shevock, J. personal communication).

Morphologically, *Layia ziegleri* falls well within the range of variation in *L. platyglossa*. The uniform yellow rays and yellow anthers in *L. ziegleri*, which superficially suggest placement within the $n=8$ group, are infrequent but widespread character states in *L. platyglossa* (cf. Clausen, J., Stages in the Evolution of Plant Species, Hafner, 1951). Although it is widely documented that uniformly yellow-rayed indi-

viduals predominate in scattered populations of *L. platyglossa* throughout its range, the occurrence of yellow anthers in this species is not reported in existing floristic treatments of *Layia*. Clausen (loc. cit.) recorded *L. platyglossa* with yellow anthers in much of its southern Californian distribution and in Baja California. I have observed collections of *L. platyglossa* with both uniform yellow rays and yellow anthers from Riverside County, outside of the San Jacinto Mountains, and San Diego County. Conversely, a small proportion of individuals in the *L. zieglerei* populations sampled had black anthers and yellow rays or black anthers and white-tipped rays (Bainbridge 91-3), as in typical *L. platyglossa*.

These counts of $n=7$ from two populations referable to *Layia zieglerei*, in addition to a count by Peter H. Raven [$n=7$, Riverside Co., San Jacinto Mountains, Hemet Meadows, Raven 12971 (RSA)], corroborate morphological evidence that *L. zieglerei* is conspecific with *L. platyglossa*. Because the yellow-anthered and yellow-rayed condition in *L. platyglossa* does not mark a discrete sublineage, I hesitate to recognize the San Jacinto Mountains plants as a subspecies. These populations are noteworthy, however, as the highest known elevational occurrences of *L. platyglossa*.

Madia stebbinsii T. W. Nelson & J. P. Nelson, $n=9$, CA, Trinity Co., 7.5 km E of Wildwood-Mad River Road along U.S. Forest Service Road 28N10, Baldwin 611 (DAV).

This chromosome count for *Madia stebbinsii* provides further evidence that this species, *M. doris-nilesiae* T. W. Nelson & J. P. Nelson, *M. hallii* Keck, and *M. nutans* (E. Greene) Keck, all with $n=9$, belong to the same sublineage within *Madia* (cf. Nelson, T. W. and J. P. Nelson, A new *Madia* of sect. *Anisocarpus* [Compositae: Heliantheae] from Trinity County, California, Brittonia 37:394-396, 1985). These four species are among only eight in all of Madiinae with $n=9$, the others being *Hemizonia kelloggii* E. Greene, *H. pallida* Keck, *H. pungens* (Hook. & Arn.) Torrey & A. Gray [including *H. laevis* (Keck) Keck], and *Osmadenia tenella* Nutt. In *Madia*, $n=9$ appears to have been derived from $n=8$, the modal diploid number, by ascending aneuploidy. The four $n=9$ *Madia* species are North Coast Range endemics restricted to serpentine (*M. doris-nilesiae*, *M. hallii*, *M. stebbinsii*) or weathered volcanic (*M. nutans*) soils. Morphologically, they are distinguished from other annual *Madia* species by their yellow anthers and pappose disk florets.

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NOTEWORTHY COLLECTIONS

ARIZONA

BOEHMERIA CYLINDRICA (L.) Swartz (URTICACEAE).—Gila Co., Tonto National Forest, Sierra Ancha Wilderness Area. Collected twice on 7 Aug 1991: (1) at Devil's Chasm, along stream just below road, 21.8 mi N on FS 203 (Cherry Creek Road) from junction with Hwy. 288, T6N, R15E, NW ¼ sect. 31, elev. ca. 1000 m, Imdorf & Landrum 37 (ASU, GH); and (2) in wet area along road at 34.4 mi N on FS 203 from junction with Hwy. 288, T7N, R14E, NE ¼ sect. 28, elev. ca. 1200 m, Imdorf & Landrum 74 (ASU).